C. B. DUTTON.

APPARATUS FOR CLEANING STIRRING RODS.

APPLICATION FILED JULY 3, 1916.

1,373,871.

Patented Apr. 5, 1921.

FIG. 1.

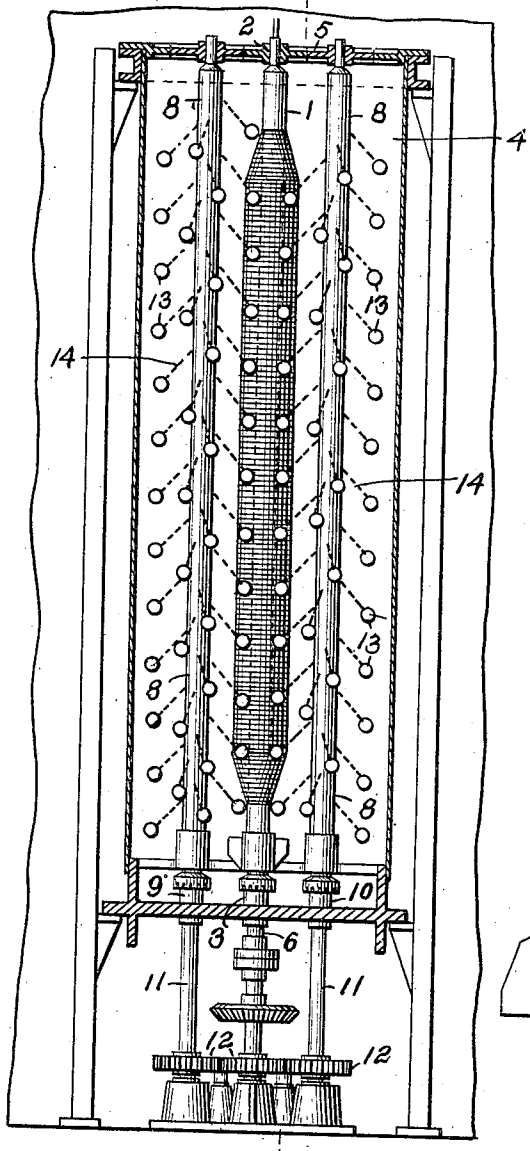


FIG. 2.

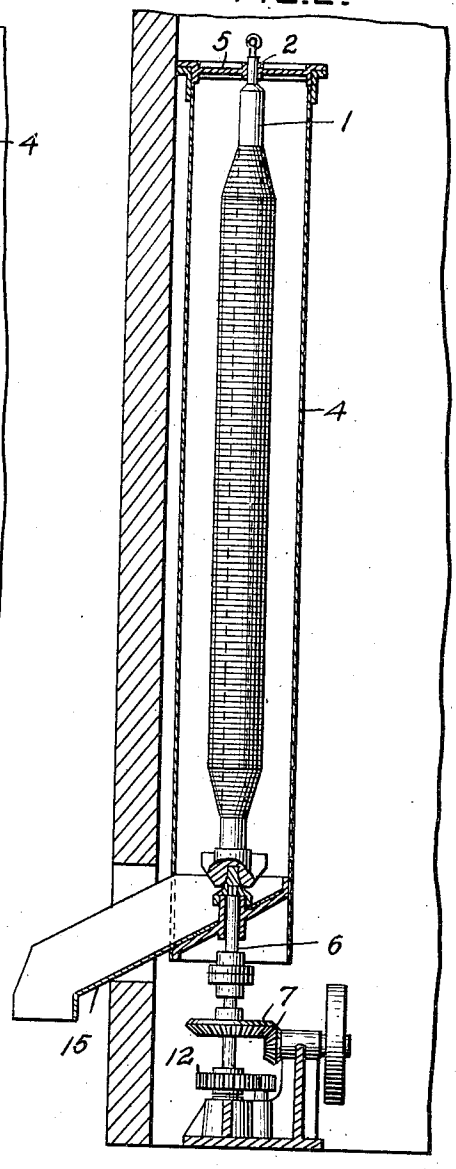
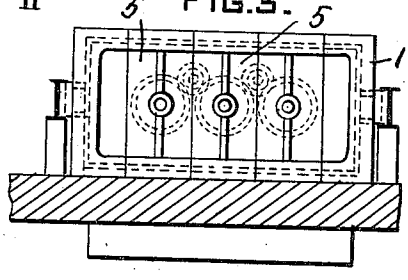


FIG. 3.



WITNESSES

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APPARATUS FOR CLEANING STIRRING-RODS.

1,373,871. Specification of Letters Patent. Patented Apr. 5, 1921.

Application filed July 3, 1916. Serial No. 107,451.

To all whom it may concern:

Be it known that I, CLARENCE B. DUTTON, residing at New York, in the county of New York and State of New York, citizen of the United States, have invented or discovered certain new and useful Improvements in Apparatus for Cleaning Stirring-Rods, of which improvement the following is a specification.

In the practice of what is known as the Rittman process carbon is formed in considerable quantities, especially when producing unsaturated hydrocarbons, as benzol, toluol, etc. This carbon accumulates on the inner walls of the Rittman tube so rapidly and in such quantities as to necessitate the employment of means of removing the carbon from such walls. An efficient means for preventing an accumulation of carbon on the walls of the tube, consists of a rotating rod arranged axially in the tube and furnished with a plurality of flexible members as short lengths of chain arranged at suitable intervals along its length, adapted not only to break up but also to scrape the carbon from the walls of the tube as the rod is rotated. This form of stirring rod is shown and described in an application of C. C. Stutz, filed May 20th, 1915, Serial Number 29366.

It has been found that the carbon will adhere to this rod and the chains, and the chains will become embedded in the carbon and be no longer effective. Rods free from carbon are then substituted for the clogged rods, and the carbon removed from the latter. This removal of the carbon by chisels and hammers is a tedious and laborious operation, and also involves the loss of considerable quantities of carbon which is a valuable product.

The invention described herein has for its object the subjecting of a clogged stirring rod to the action of a multiplicity of small rapidly moving bodies, which will not only strike with sufficient force to break up the adhering coating of carbon, but will also drag or scrape along the rod, thereby acting more efficiently in removing the carbon. The invention is hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification, Figure 1 is a sectional elevation of an apparatus embodying the invention and showing a clogged rod in position to be cleaned; Fig. 2 is a sectional elevation, the plane of section being indicated by the line II—II, Fig. 1; Fig. 3 is a top plan view.

In the practice of the invention, a stirring rod 1 which has become heavily coated and clogged with carbon in a Rittman tube, is withdrawn therefrom and placed in position in bearings 2 and 3 in a chamber 4 having a suitable top 5. The lower step or bearing 3 of this rod is carried on the upper end of the shaft 6 which is driven by a suitable motor through interposed gearings 7, as shown in Figs. 1 and 2. One or more shafts 8 are arranged vertically within the box or case, substantially parallel with the axis of the stirring rod to be cleaned and are supported by bearings 9 and 10. The lower bearings 10 are carried on the upper ends of shafts 11 which are driven through intermeshing gearings 12 from the power driven shaft. It will be observed that as the gears on the vertical shafts 11 intermesh directly with the gear in the driven shaft, the rods carried by the former shafts will be rotated in a direction opposite that of the rod to be cleaned. To these cleaning shafts are flexibly connected a multiplicity of small balls or bodies 13, preferably of metal, so that when the cleaning shafts are rotated, these balls will be thrown out by centrifugal action and will strike against the opposite rotating stirring rod, which is arranged intermediate the cleaning shafts. The flexible connections 14 between the cleaning shafts and the balls are made of such a length, that when in extended position, due to the centrifugal action, the balls will strike against the stirring rod at points distant from the axis of the stirring rod less than one-half the diameter of the latter, so that in addition to the breaking up and dislodgment due to the blows of the balls or other bodies, the latter will be dragged along the surface and thereby scrape the material, as carbon, from the surface of the stirring rod.

The carbon is dislodged from the stirring rod and drops down on to a chute 15 whereby it is carried outside of the inclosing case. As shown in Fig. 3, the cover is made of sections each section having a bearing for the upper ends of the cleaning rods and also for the stirring rod. When a stirring rod is to be cleaned the middle section is removed, the rod lowered into position and the cover replaced, the upper journal of the stirring

rod passing through the bearings in such section.

I claim herein as my invention:

1. In an apparatus for cleaning stirring rods, the combination of means for rotating the rod to be cleaned, a shaft arranged substantially parallel with the stirring rod; means for rotating said shaft and a plurality of balls flexibly connected to the shaft at suitable intervals along its length and adapted to impinge against the stirring rod on the rotation of the shaft.

2. In an apparatus for cleaning stirring rods, the combination of a case or shell provided with bearings for the support of opposite ends of a stirring rod, means for rotating one of said bearings, a shaft arranged substantially parallel with the axes of the bearings for the stirring rod, means for rotating said shaft, and a plurality of balls, and flexible connections from a plurality of points along the shaft to said balls.

3. An apparatus for cleaning stirring rods comprising means for revolubly supporting a stirring rod in vertical position, a shaft arranged substantially parallel with the rod, a plurality of hammer elements flexibly attached to the shaft along its length and adapted to impinge against the stirring rod upon rotation of the shaft, and means for revolving the rod and the said shaft in opposite directions.

In testimony whereof, I have hereunto set my hand.

CLARENCE B. DUTTON.